



NUCLEAR REGULATORY COMMISSION

[NRC-2015-0063]

Reassessment of NRC's Dollar Per Person-Rem Conversion Factor Policy

AGENCY: Nuclear Regulatory Commission.

ACTION: NUREG;issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing NUREG-1530, Revision 1, "Reassessment of NRC's Dollar Per Person-Rem Conversion Factor Policy."

This revision to NUREG-1530 updates the dollar per person-rem conversion factor and establishes a method for keeping this factor up-to-date. The NRC uses the dollar per person-rem conversion factor in cost-benefit analyses to determine the monetary valuation of the consequences associated with radiological exposure and establishes this factor by multiplying a value of a statistical life (VSL) coefficient by a cancer mortality risk coefficient.

DATES: NUREG-1530, Revision 1 is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2015-0063** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2015-0063**. Address questions about Docket IDs to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individual listed in the "For Further Information Contact" section of this document.

- **NRC's Agencywide Documents Access and Management System**

(ADAMS): You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the

search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to PDR.Resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document.

- **NRC’s PDR:** You may examine and purchase copies of public documents, by appointment, at the NRC’s PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8:00 a.m. and 4:00 p.m. (ET), Monday through Friday, except Federal holidays

FOR FURTHER INFORMATION CONTACT: Pamela Noto, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-6795, email: Pamela.Noto@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Discussion

Revision 1 to NUREG-1530 (ADAMS Accession No. ML22053A025) updates the dollar per person-rem conversion factor and establishes a method for keeping this factor up-to-date. The NRC applies the dollar per person-rem conversion factor from NUREG-1530 in a variety of regulatory applications that require the determination of the monetary valuation of the consequences associated with radiological exposure. This factor is established by multiplying a VSL coefficient by a nominal risk coefficient.

In 2009, the NRC staff initiated research on the bases for the determination of the VSL and performed outreach with other Federal agencies on their values and use. The VSL is not a value placed on human life, but a value that society would be willing to pay for reducing health risk. The concept of a VSL is used throughout the Federal government to monetize the health benefits of a safety regulation. Subsequently in 2011 the magnitude of the societal effects of the accident at the Fukushima Dai-ichi nuclear

power plant in Japan led the NRC to evaluate how its regulatory framework considers offsite property damage and the associated economic consequences that could be caused by a significant radiological release from an NRC-licensed facility.

Following this evaluation, the NRC staff requested Commission approval in SECY-12-0110, "Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission's Regulatory Framework," dated August 14, 2012 (ADAMS Package Accession No. ML12173A478) to continue work on updating the 1995 dollar per person-rem conversion factor in NUREG-1530 (ADAMS Accession No. ML063470485). The 1995 dollar per person-rem value was set at \$2,000. This number resulted from the multiplication of a VSL of \$3 million by a risk coefficient for stochastic health effects of 7.3×10^{-4} per person-rem. In the March 20, 2013 staff requirements memorandum associated with SECY-12-0110 (ADAMS Accession No. ML13079A055), the Commission approved the staff's request to continue the activities associated with the update to the dollar per person-rem conversion factor policy.

This revision to NUREG-1530 makes five main changes. First, the revision to NUREG-1530 updates the dollar per person-rem conversion factor to \$5,200 per person-rem. The value is based on the application of an updated best estimate VSL of \$9.0 million and the U.S. Environmental Protection Agency's (EPA) cancer mortality risk coefficient factor of 5.8×10^{-4} per person-rem. The VSL estimate is derived from the average of both the U.S. Department of Transportation's and the EPA's VSL in 2014 dollars.

Second, the NUREG adopts low and high dollar per person-rem conversion factor estimates for use in sensitivity analyses. The NRC staff recommends varying the dollar per person-rem conversion factor by plus or minus 50 percent. This results in a range of conversion factors with a low value of \$2,600 per person-rem and a high value of \$7,800 per person-rem.

Third, this revision to NUREG-1530 indicates that the NRC staff will round to two significant figures instead of rounding to the nearest thousand dollar value. Historically,

the NRC has rounded this number to the nearest thousand dollars for the purposes of dollar per person-rem estimates. Given the large uncertainties inherent in this approach, updates would have little to no impact on this value between periodic baseline reviews.

Fourth, this revision establishes a methodology for keeping the dollar per person-rem conversion factor up-to-date. An example of the NRC's methodology to update the dollar per person-rem conversion factor is provided in the NUREG. The NUREG also provides procedures for re-baselining the dollar per person-rem conversion factor.

Finally, this revision provides guidance to the NRC staff on when to use a higher dollar per person-rem factor in rare accident sequences with high dose or dose rates for a portion of the population.

II. Public Outreach

The NRC staff held a Category 3 public meeting on April 2, 2015, to discuss the update to NUREG-1530. The NRC presentation can be found in ADAMS under Accession No. ML15086A112, and the meeting summary under Accession No. ML15098A649. In response to this meeting, the Nuclear Energy Institute submitted a letter to the NRC, which provided feedback on the proposed update. This letter and the associated attachment can be found in ADAMS under Accession Nos. ML15126A489 and ML15126A498, respectively. The NRC staff published the draft NUREG-1530, Revision 1 in the *Federal Register* (80 FR 53585, September 4, 2015) for a 60-day public comment period. The staff received 11 comment submissions with a total of 38 individual comments from industry and members of the public. The NRC responses to these public comments can be found in ADAMS under Accession No. ML16147A501. External participants also expressed views on the update to NUREG-1530 during the July 26, 2016, Commission meeting with NRC stakeholders. Additionally, the NRC staff briefed the Advisory Committee on Reactor Safeguards (ACRS) Regulatory Policies and Practices Subcommittee on February 7, 2017, and the ACRS Full Committee on March 9, 2017.

III. Backfitting, Forward Fitting, and Issue Finality

The NRC's issuance and use of this report do not constitute backfitting as that term is defined in Section 50.109 of title 10 of the *Code of Federal Regulations* (10 CFR), "Backfitting," and as described in NRC Management Directive (MD) 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests"; do not affect the issue finality of an approval under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" and do not constitute forward fitting as that term is defined and described in MD 8.4.

IV. Congressional Review Act

This NUREG is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

Dated: February 22, 2022.

For the Nuclear Regulatory Commission.

John R. Tappert, Director,
Division of Rulemaking, Environmental,
and Financial Support.
Office of Nuclear Material Safety, and
Safeguards.

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